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EXAMINER
GOINS, DAVETTA WOODS

ART UNIT	PAPER NUMBER
2632	

DATE MAILED: 06/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/902,711	FUKUI, KUNIHIKO
	Examiner	Art Unit
	Davetta W. Goins	2632

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-18 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-18 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Claim Objections

1. Claims 5, 7, 14, and 16 are objected to because of the following informalities:

With respect to claims 5 and 14, the claimed "the operating time", in lines 3 and 4 of both claims should be changed to "time of operation" to follow the sequence of claims 1 and 10.

With respect to claims 7 and 16, the claimed "engine operating time", in line 2 of both claims, should be changed to "operation time of an engine", to follow the sequence of claims 1 and 10.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over mc Donald et al. (US Pat. 6,327,900 B1) in view of Raffa et al. (US Pat. 5,382,942).

In reference to claim 1, Mc Donald discloses the claimed oil exchange timing indicating apparatus for a vehicle, comprising a) the claimed operation time integrator means for integrating operation times of an engine mounted on the vehicle, which is met by the calculation of remaining oil life is updated over a predetermined interval which may be measured either in terms of time or in terms of elapsed engine revolutions, during each engine operation, a counter

accumulates the number of engine over a predetermined interval (in terms of time or engine revolutions), (col. 4, lines 42-49 and col. 5, lines 39-46), b) the claimed oil exchange informing means for informing a user of exchange timing of oil, which is met by indicator 24 used to advise the operator of the need to change the oil (col. 3, lines 42-50), and c) the claimed controlling means for starting, when either an integrated value of the travel distances or an integrated value of the operation times, based on signals from the operation time integrator means exceeds a preset value, the oil exchange informing means to inform the user of the exchange timing of oil, which is met by controller 14 including a microprocessor 26 used to compute the useful life of the engine oil by monitoring the number of engine revolutions corresponding to the maximum allowed number of revolutions for the useful life of the engine oil stored in memory. When the stored remaining allowed engine revolutions value has decreased below a predetermined threshold value indicating the useful life of the engine oil, the vehicle operator is alerted to change the oil. Also, if the maximum allowed number of traveled miles since the previous oil change, even if the remaining allowed engine revolutions have not reached the designated threshold value, a "change oil" signal will be activated (col. 4, lines 50-67 and col. 5, lines 1-6). Although Mc Donald does not specifically disclose the claimed odometer means for integrating travel distances of the vehicle or the controlling means for starting based on a signal from the odometer, he does disclose a controller 14 including a microprocessor 26 which monitors the number of engine revolutions to assume a value, which becomes nearly constant as a function of time or distance traveled, and then determine the remaining useful life of the engine oil. If the maximum allowed number of traveled miles since the previous oil change reach a predetermined threshold, a "change oil" signal will be activated (col. 3, lines 51-

67, col. 4, lines 13-25, and col. 5, lines 1-6). The need for an oil change is also performed by keeping track of the actual mileage driven by the vehicle (col. 6, lines 24-33). Raffa discloses an engine oil monitoring system having an in-vehicle display of the current status of the oil, a microcomputer 24 receives inputs from an odometer sensor 28 indicative of the actual distance driven by the vehicle and the engine speed or tachometer signals generated by the electronic engine control (col. 4, lines 5-19). Since Mc Donald discloses a microprocessor capable of determining the traveled distance of the vehicle during the operation of the engine, it would have been obvious to one of ordinary skill in the art to incorporate an odometer means, as disclosed by Raffa, to provide a more accurate measurement of the distance traveled by the vehicle which will help give a more accurate indication as to the amount of engine oil.

In reference to claim 2, Mc Donald the claimed controlling means stores a plurality of distinct preset integrated values relating to each of the integrated value of travel distance and operation time, and the controlling means receives, when the integrated value exceeds a smaller preset integrated value and the exchange of oil is carried out, an oil exchange signal to rewrite a first predetermined preset integrated value to a second predetermined preset integrated value successively, which is met by controller 14 including a microprocessor 26 used to monitor the need for changing engine oil based on the calculation of remaining oil life being updated over a predetermined interval which may be measured either in terms of time or in terms of elapsed revolutions. At the start of service after a reset of the oil life monitor system, the number of engine revolutions corresponding to the maximum allowed number of revolutions for the useful life of the engine oil is stored in the memory of the vehicle's computer. During each period of

vehicle operation, the stored number is decreased by the effective engine revolutions value, resulting in a remaining allowed engine revolutions value. Each time the effective engine revolutions value is calculated and subtracted from the remaining allowed engine revolutions value is stored in memory. When the stored remaining allowed engine revolutions value has decreased below a predetermined threshold value indicating the useful life of the engine oil, the vehicle operator is alerted to change the oil. Also, if the maximum allowed number of traveled miles since the previous oil change, even if the remaining allowed engine revolutions have not reached the designated threshold value, a "change oil" signal will be activated (col. 4, lines 50-67 and col. 5, lines 1-6).

In reference to claim 3, Mc Donald discloses the claimed oil exchange signal is generated by operating a reset switch mounted on the vehicle, which is met by oil change reset 22, which sends a signal to the controller 14 to clear or reset certain variables used by the controller 14 to determine the degradation of the oil (col. 3, lines 47-50).

In reference to claim 4, although Mc Donald does not disclose the claimed oil exchange informing means including a light that is selectively illuminated for informing a user of the exchange timing of oil, he does disclose an indicator 24 advising the operate of the need to change the oil (col. 3, lines 36-50). Raffa discloses an in-vehicle display including a green light 70, a yellow light 72, and a red light 74 activated by the microcomputer 24 to indicate when the oil should be changed (col. 5, lines 11-41). Since Mc Donald discloses that an indicator is used to inform the user of when to change the oil, it would have been obvious to one of ordinary skill

in the art to incorporate the use of a light, as disclosed by Raffa, with the system of Mc Donald, to ensure that the user's attention is gained to the display and is aware of the time of when to get the oil changed.

In reference to claim 5, Mc Donald discloses the claimed controlling means including a microcomputer for storing a plurality of preset values for the travel distances and the operating time and for integrating the preset values for the travel distances and the operating time to provide an output for advising a user of the exchange timing of oil, which is met by controller 14 including a microprocessor 26 used to compute the useful life of the engine oil by monitoring the number of engine revolutions corresponding to the maximum allowed number of revolutions for the useful life of the engine oil stored in memory. When the stored remaining allowed engine revolutions value has decreased below a predetermined threshold value indicating the useful life of the engine oil, the vehicle operator is alerted to change the oil. Also, if the maximum allowed number of traveled miles since the previous oil change, even if the remaining allowed engine revolutions have not reached the designated threshold value, a "change oil" signal will be activated (col. 4, lines 50-67 and col. 5, lines 1-6).

In reference to claim 6, Mc Donald discloses the claimed preset value for the travel distances is set based on a relationship between the travel distances and the degree of degradation of oil, which is met by the determining the need for an oil change by keeping track of the actual mileage driven by the vehicle and providing a change oil signal at the manufacturer's maximum recommended mileage after the last oil change (col. 6, lines 24-33).

In reference to claim 7, Mc Donald discloses the claimed preset value for the engine operating time is set based on a relationship between the engine operating time and the degree of degradation of oil, which is met by the remaining useful life of the engine oil is calculated by measuring the engine revolutions, when the stored remaining allowed engine revolutions value has decreased a predetermined threshold value indicating the end of the useful life of the engine oil, the vehicle operator is alerted to change the oil (col. 4, lines 50-67 and col. 5, lines 1-6).

In reference to claim 8, Mc Donald discloses the claimed user being advised of the exchange time of oil when the integrated value of the travel distance exceeds a corresponding value, which is met by if the maximum allowed number of traveled miles since the previous oil change, even if the remaining allowed engine revolutions have not reached the designated threshold value, a "change oil" signal will be activated (col. 5, lines 1-6).

In reference to claim 9, Mc Donald discloses the claimed user being advised of the exchange time of oil when the integrated of the operating time exceeds a corresponding value, which is met by the calculation of remaining oil life is updated over a predetermined interval which may be measured either in terms of time or in terms of elapsed engine revolutions, once the stored remaining allowed engine revolutions value has decreased below a predetermined threshold value indicating the useful life of the engine oil, the vehicle operator is alerted to change the oil (col. 4, lines 50-67 and col. 5, lines 1-6).

In reference to claim 10, discloses the claimed oil exchange timing indicating apparatus for a vehicle comprising a) the claimed operational timer determining the time of operation of an engine of a vehicle and for generating a time of operation signal, which is met by the calculation of remaining oil life is updated over a predetermined interval which may be measured either in terms of time or in terms of elapsed engine revolutions, during each engine operation, a counter accumulates the number of engine over a predetermined interval (in terms of time or engine revolutions), (col. 4, lines 42-49 and col. 5, lines 39-46), b) the claimed oil exchange indicator for informing the user of an exchange time for oil, which is met by indicator 24 used to advise the operator of the need to change the oil (col. 3, lines 42-50), and c) the claimed controller for comparing at least one of a travel distance and a time of operation based on signals from the odometer and the time of operation as compared to a preset value for the travel distance and the time of operation, and for providing a signal to the oil exchange indicator inform the user of the exchange timing of oil, which is met by controller 14 including a microprocessor 26 used to compute the useful life of the engine oil by monitoring the number of engine revolutions corresponding to the maximum allowed number of revolutions for the useful life of the engine oil stored in memory. When the stored remaining allowed engine revolutions value has decreased below a predetermined threshold value indicating the useful life of the engine oil, the vehicle operator is alerted to change the oil. Also, if the maximum allowed number of traveled miles since the previous oil change, even if the remaining allowed engine revolutions have not reached the designated threshold value, a "change oil" signal will be activated (col. 4, lines 50-67 and col. 5, lines 1-6). Although Mc Donald does not specifically disclose the claimed odometer for determining travel distances of a vehicle and for generating a travel distance signal, he does

disclose a controller 14 including a microprocessor 26 which monitors the number of engine revolutions to assume a value, which becomes nearly constant as a function of time or distance traveled, and then determine the remaining useful life of the engine oil. If the maximum allowed number of traveled miles since the previous oil change reach a predetermined threshold, a "change oil" signal will be activated (col. 3, lines 51-67, col. 4, lines 13-25, and col. 5, lines 1-6). The need for an oil change is also performed by keeping track of the actual mileage driven by the vehicle (col. 6, lines 24-33). Raffa discloses an engine oil monitoring system having an in-vehicle display of the current status of the oil, a microcomputer 24 receives inputs from an odometer sensor 28 indicative of the actual distance driven by the vehicle and the engine speed or tachometer signals generated by the electronic engine control (col. 4, lines 5-19). Since Mc Donald discloses a microprocessor capable of determining the traveled distance of the vehicle during the operation of the engine, it would have been obvious to one of ordinary skill in the art to incorporate an odometer means, as disclosed by Raffa, to provide a more accurate measurement of the distance traveled by the vehicle which will help give a more accurate indication as to the amount of engine oil.

In reference to claim 11, Mc Donald discloses the claimed controller storing a plurality of distinct preset integrated values relating to each of the integrated value of travel distance and operation time, and the controller receiving, when the integrated value exceeds a smaller preset integrated value and the exchange of oil is carried out, an oil exchange signal to rewrite a first predetermined preset integrated value to a second predetermined preset integrated value successively, which is met by controller 14 including a microprocessor 26 used to monitor the

need for changing engine oil based on the calculation of remaining oil life being updated over a predetermined interval which may be measured either in terms of time or in terms of elapsed revolutions. At the start of service after a reset of the oil life monitor system, the number of engine revolutions corresponding to the maximum allowed number of revolutions for the useful life of the engine oil is stored in the memory of the vehicle's computer. During each period of vehicle operation, the stored number is decreased by the effective engine revolutions value, resulting in a remaining allowed engine revolutions value. Each time the effective engine revolutions value is calculated and subtracted from the remaining allowed engine revolutions value is stored in memory. When the stored remaining allowed engine revolutions value has decreased below a predetermined threshold value indicating the useful life of the engine oil, the vehicle operator is alerted to change the oil. Also, if the maximum allowed number of traveled miles since the previous oil change, even if the remaining allowed engine revolutions have not reached the designated threshold value, a "change oil" signal will be activated (col. 4, lines 50-67 and col. 5, lines 1-6).

In reference to claim 12, Mc Donald discloses the claimed oil exchange signal is generated by operating a reset switch mounted on the vehicle, which is met by oil change reset 22, which sends a signal to the controller 14 to clear or reset certain variables used by the controller 14 to determine the degradation of the oil (col. 3, lines 47-50).

In reference to claim 13, although Mc Donald does not disclose the claimed oil exchange informing means including a light that is selectively illuminated for informing a user of the

exchange timing of oil, he does disclose an indicator 24 advising the operate of the need to change the oil (col. 3, lines 36-50). Raffa discloses an in-vehicle display including a green light 70, a yellow light 72, and a red light 74 activated by the microcomputer 24 to indicate when the oil should be changed (col. 5, lines 11-41). Since Mc Donald discloses that an indicator is used to inform the user of when to change the oil, it would have been obvious to one of ordinary skill in the art to incorporate the use of a light, as disclosed by Raffa, with the system of Mc Donald, to ensure that the user's attention is gained to the display and is aware of the time of when to get the oil changed.

In reference to claim 14, Mc Donald discloses the claimed controller includes a microcomputer for storing a plurality of preset values for the travel distances and the operational time and for integrating the preset values for the travel distances and the operational time to provide an output for advising a user of the exchange timing of oil, which is met by which is met by controller 14 including a microprocessor 26 used to compute the useful life of the engine oil by monitoring the number of engine revolutions corresponding to the maximum allowed number of revolutions for the useful life of the engine oil stored in memory. When the stored remaining allowed engine revolutions value has decreased below a predetermined threshold value indicating the useful life of the engine oil, the vehicle operator is alerted to change the oil. Also, if the maximum allowed number of traveled miles since the previous oil change, even if the remaining allowed engine revolutions have not reached the designated threshold value, a "change oil" signal will be activated (col. 4, lines 50-67 and col. 5, lines 1-6).

In reference to claim 15, Mc Donald discloses the claimed preset value for the travel distances is set based on a relationship between the travel distances and the degree of degradation of oil, which is met by the determining the need for an oil change by keeping track of the actual mileage driven by the vehicle and providing a change oil signal at the manufacturer's maximum recommended mileage after the last oil change (col. 6, lines 24-33).

In reference to claim 16, Mc Donald discloses the claimed preset value for the engine operating time is set based on a relationship between the engine operating time and the degree of degradation of oil, which is met by the remaining useful life of the engine oil is calculated by measuring the engine revolutions, when the stored remaining allowed engine revolutions value has decreased a predetermined threshold value indicating the end of the useful life of the engine oil, the vehicle operator is alerted to change the oil (col. 4, lines 50-67 and col. 5, lines 1-6).

In reference to claim 17, Mc Donald discloses the claimed user being advised of the exchange time of oil when the integrated value of the travel distance exceeds a corresponding value, which is met by if the maximum allowed number of traveled miles since the previous oil change, even if the remaining allowed engine revolutions have not reached the designated threshold value, a "change oil" signal will be activated (col. 5, lines 1-6).

In reference to claim 18, Mc Donald discloses the claimed user being advised of the exchange time of oil when the integrated of the operating time exceeds a corresponding value, which is met by the calculation of remaining oil life is updated over a predetermined interval which may

be measured either in terms of time or in terms of elapsed engine revolutions, once the stored remaining allowed engine revolutions value has decreased below a predetermined threshold value indicating the useful life of the engine oil, the vehicle operator is alerted to change the oil (col. 4, lines 50-67 and col. 5, lines 1-6).

4. The prior art of record and not relied upon is considered pertinent to the applicant's disclosure as follows. Schwartz et al. (US Pat. 4,847,768), Hasfjord (US Pat. 6,172,602 B1), and Guertler et al. (US Pat. 6,266,587 B1), which disclose engine oil change indicating systems.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Davetta W. Goins whose telephone number is 703-306-2761. The examiner can normally be reached on 4-5-9.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffery A. Hofsass can be reached on 703-305-4717. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-7666.

Davetta W. Goins
Art Unit 2632

Davetta W. Goins

D.W.G.
May 30, 2002